

**ISP SERVER CONFIGURATION ON LINUX, MIKROTIK,  
CISCO SWITCH, Wi-Fi PLATFROM, AND CAMBIUM**

**BY**

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This Report Presented in Partial Fulfillment of the Requirements for the  
Degree of Bachelor of Science in Computer Science and Engineering

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**DAFFODIL INTERNATIONAL UNIVERSITY**

**DHAKA, BANGLADESH**

**SEPTEMBER 2019**

## **APPROVAL**

This Project/internship titled “**ISP SERVER CONFIGURATION ON LINUX, MICROTIC, CISCO SWITCH, Wi-Fi PLATFROM, AND CAMBIUM NETWORKS**”, submitted by Asima Rani Mondol, ID No: 162-15-8009 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 13th SEPTEMBER 2019.

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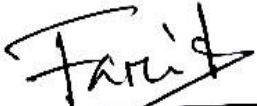
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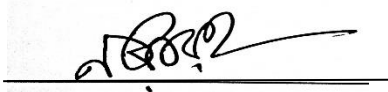
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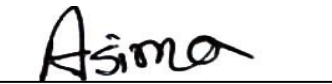
I declare that, this internship report is prepared by me, Name: Asima Rani Mondol ID No: 162-15-8009 to the department of Computer Science and Engineering, Daffodil International University. Under the supervision of **Mr. Narayan Ranjan Chakraborty Assistant Professor, Department of CSE**, Daffodil International University. I also declare that neither this internship report nor any part of this internship report has been submitted elsewhere for award of any Degree or Diploma. I also declare that, I collect information from Intech Limited, Books and Internet.

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Finally, I must acknowledge with due respect the constant support and patients of parents.

## **ABSTRACT**

This internship document is intended for the completion of a BSc in computer science and engineering. I heard that. Intech limited gave me the change for ISP sever configuration on linux, mikrotik router cisco switch, cambium network and wi-fi platform, etc. Linux is continually considered a very secure operating system. MikroTik is one of the very popular platforms in digital Bangladesh. We can do almost the whole lot the usage of MikroTik which include router static connection, DHCP connection, website block, etc. In this report typically the detailed steps for configuring the Linux and MikroTik has been described.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

ISP server configuration of Linux and Mikro-Tik platform, cisco switch, Wi-Fi router configuration & be aware of about cambium networks this is the principal aim of my internship application is to put together myself as a skilled individual in professional. So internship is very indispensable for me. I favor to attain quite specific fine to show myself. It covers superior skills for the Linux expert that. This aim consists of the capability to manipulate a running server and configuring. Linux with clear learning two of offerings to be used. It covers primary capabilities for the Linux professional. Banking depend on sever system, international card. Every business and e-commerce today has a whole lot to do with software-based conversation , internet technological know-how is additionally a very beneficial server , with the aid of the usage of this gadget we can operate a variety of sorts of services.

### 1.2 Motivation

My internship program influenced B.Sc. students following tiers at Computer Science, IT Directorate of Science and Technology. The internship does now not only supply experience however additionally teaches a student how to communicate, how to work properly, how to preserve authentic requirements. As an intern, I am magisterial of myself. An internship gives me widespread knowledge, big skill improvement in networking sites. An internship can make a student responsible and professional. A student can take an area ride by doing an internship. As a result, the internship grows the capacity Networking is my first choice due to the fact I am interested in computer networking and I am especially determined I desire to construct my profession as a records technological know-how engineer. Information science engineers very demandable in the first world is too excessive and statistics technology is turning into a prior challenge in our country also. If we make a robust networking system then we grant a “Digital Bangladesh” other way is not possible.

### **1.3 Internship objectives**

The essential goal of my internship application is a perception of a contemporary prerequisite of the job market and also to put together skilled individual in a competitive job place. The internship is very fundamental for ability improvement. To attain some exclusive fantastic and real-life job experience in order to prove myself as a skilled one internship. It has a large effect on our IT sector, we will in a position to use the Internet, Software export, Call center, E-Commerce, Tele -Education, Video Conferencing more vastly. By identifying these elements we can be certain about the progressive change over our IT sector, throughout our working time in Intech Limited we achieved a number of experiences and knowledge. Here are some objectives of the internship.

### **1.4 Introduction to the Company**

Intech Limited, one of the first mover in internet service in Bangladesh. ISP (Internet Service Provider) in Bangladesh Started a business from 01-02-2000 with Nationwide ISP License running its business with full commitment In this past 12 months they customer supporting each time. They have a very own fiber-optic server. They all time use a trendy version of technological know-how and also upgrading the service. They have all are specialist staff, robust expert management to survive any type of problem. Intech Limited has at some stage in the years persevered to provide comprehensive IT options and offerings that consist of Systems Integration, Information System Outsourcing, Network and Solutions, supply, implementation, and maintenance.

### **1.5 Report layout**

Now I talk about the goal of internship, Motivation of internship and introduction to the Company in my document paper. I have portrayed the method of my internship. About the company, goal group, organizational structure. In this report, written about daily through tasks. This report, I have written about the Completion and Future opportunities. Additionally talk about the Future opportunities of records technological know-how or network administration. I talk about the conclusion and future profession in records technology. In the last pages have all the references and appendices now I am adding.

## **CHAPTER 2**

### **BACKGROUND**

#### **2.1 About the Company**

Intech Limited delight every other famous ISP in Bangladesh. They are the most skillful & earliest two ISP enterprise with differ tons useful with client. They are proud to be executed that their outlook and un-formal promising is there future to increase this company. It is extraordinary types of IT issuer and coaching center, and our outlook for an equally promising future is even more exciting. Accomplished, they're even extra excited about their future potentialities. They are built in 2000. In this previous 12 month they purchaser supporting each time. They have own fiber optic server. They all time use ultra-modern version of technology and also upgrading the service. They have all are specialist staff, robust expert administration to service any type of problem.

#### **2.2 Product and Market Situation**

Finding a new job can be an overwhelming prospect in just about any industry today, but for those with Linux skills, the challenges are a little bit less daunting. We can find more than 11,000 Linux-related jobs on any given day on tech jobs site Dice.com, for example, and demand for Linux experience there is growing at a rate of 31 percent year over year, compared with just 20 percent for job postings overall. A similar situation can be found on the Linux Foundation's Jobs Board, meanwhile, where more than 30 Linux job ads were recently posted in a single week. Demand for Linux skills far outstrips supply, in other words, so it's no wonder companies are worried about finding the staff they need.

- IT Services
- ISP Setup, Administration and configuration with Linux.
- ISP Setup, Administration and configuration with Mikro-tik.
- Hi speed Wi-Fi Zone.
- Domain registration and web hosting.



## 2.3 Target Group

Intech Limited prides itself on being of top in the nationwide Internet access Providers (ISPs) in Bangladesh. They are the skilled and oldest corporations the ICT branch the place primary corporation ethic long-term relationships with customers. Seem to be sharply proud of the reality that they have been inaugurated for decades, they are extraordinarily proud we have carried out and greater about enthusiastic vision is to be equally committed. Future Intech Limited provides additional IT services and professional training services.

## 2.4 SWOT Analysis

SWOT evaluation strategic method that helps a character or organization become aware of the strengths, weaknesses, opportunities, and threats associated with the business competition action.

- **Strength:**
- Ance Communication between individual people through distance (at home and at work).
- Information Collection (Business is a valuable asset).
- Online set up an online business.
- **Weaknesses:**
- Small vendor competition.
- Numerous pricing service options.
- **Opportunities:**
- The age structure of the population is changing.
- Modification regulatory framework.
- **Threats:**
- It is still to view in some ways customers may also tempt embrace Internet access.



## 2.5 Organizational Structure

Table 2.1: Employee Hierarchy of Intech Limited.

<b>Chairman</b>
<b>Managing Director</b>
<b>CEO</b>
<b>General Manager</b>
<b>Secretary</b>
<b>Manager</b>
<b>Deputy Manager</b>
<b>Assistance Manager</b>
<b>Senior Officer</b>
<b>Officer</b>
<b>Officer Staff</b>



## CHAPTER 3

### TASKS, EVENTS AND ACTIVITIES

#### 3.1 Daily Tasks and Activities

**Month – 1:** I learned the first month of Intech limited internship and practiced the following:

- Introduction of Network IP address.
- Understand the basic idea of a router.
- Routing configuration and how the router works.
- Trying to know about Mikro-Tik router.
- About know different types of router.
- About Static routing configuration.
- About Dynamic routing configuration.

**Month – 2:** When I have completed a one-month internship learned and performed this thing:

- learn about PPPoE configuration.
- learning about NTP configure
- Learning and understanding Local ISP configuration.
- know about Bridge mood configure
- Introduction of WI-FI configure.
- Trying to know about essential two routing.

**Month – 3:** Intech limited third month internship, learned and performed this tasks:

- Know about Cisco switch & router configuration.
- Learning about Network cabling system.
- Know about IPV6 fundamental and configuration.
- Know about cambium networks.



**Month – 4:** Last month of the Intech Limited Internship I learned and performed the following tasks:

- Introduction of Linux addition two & Installation.
- Know about Linux system administration.
- Describe of FTP, NFS, WEB, Samba, DHC, DNS server.
- Learn about Syslog server.
- Know about Securing with IP tables.
- Introduction of NIS configuration.
- Learn RAID, LVM, Boot and Grub level.
- Learn about mounting and RPM.
- Know about Modify the partition.

### **3.2 Events and Activities**

- Monitor Computer Systems and Network.
- Set up user accounts, and passwords.
- Correction servers and routers.
- Correction of local area networks and switches.
- Fixing network faults.
- Technical support for people using the network.
- Cellphone or physical client support ends the customer.
- Monitor daily admin and network usage. Fixing network faults.

### **3.3 Project Task and Activities**

#### **Networks:**

A Network mixture of computers, servers machine many different peripherals two machine which is related every different to sharing the facts or records and so on.

Networks are five types:

1. Local area community (LAN)
2. Metropolitan area network (MAN)
3. Wide area network (WAN)
4. Wireless
5. Inter network (Internet)

**ISP:** A web service issuer (ISP) is a machine that presents many sorts of net get entry to use or assistance provider. Internet provider vendors can be organized in distinct types such as commercial, community owned, nonprofit, or in any other case personal ownership.

#### **Different types of ISP connections**

- Dial-up.
- Digital subscriber line (DSL).
- Cable broadband.
- Fiber optic broadband.
- Wi-Fi broadband.
- Satellite and mobile broadband.
- Dedicated leased line.

**Mikro-Tik Routers** That's the hardware router board OS. It can be mounted on a computer two with all fundamental feathers two to route firewall, IP address gateway DNS server, PPPoE server etc.

**Router:** A router is a network gadget which is forward records to computer. Router operate the traffic directing characteristic on the internet.

**Wi-fi:** Wi-Fi is the wireless network technological know-how which makes use of radio waves to function high speed net and network connection.

**IP Address:** IP tackle which is web protocol address. Network use the IP tackle which is assign on protocol to talk and assist to records passing.

**Function:** IP address has two function that name host and another is network.

### **3.4 Mikro-Tik Router**

Mikro-Tik hardware which is basically use for router. In any employer take bandwidth in primary router than it given by way of different Mikro-Tik router. It's the usage of in LAN, swap hotspot and many others for the user to data sharing.

### **Mikro-Tik Router Rb2011UiAS:**

Mikro-Tik Router Rb2011UiAS has most features and interface from all our wireless router. It has 600MHz 70K community processor. 128mb RAM, SFP cage, 5 GB LAN ports and Ethernet ports. 2,4Ghz 802.11 wireless. RJ45 serial ports and micro USB port. Fig (3.1) Ref [2];



Fig: 3.1: Image of Rb2011UiASMikrotik Router.

### **3.5 Router OS**

The Mikro-Tik is an OS which is used for router. Any employer use it for router because of its price reachable it at the identical time connect 10 laptop in one IP address. It can additionally using bridge, firewall, DHCP additionally the use of hotspot. It join with swap, data passing to purchaser very smoothly.

### **3.6 Features**

Router OS helps many functions used through Internet Service Providers. For example:

- It uses a bridge or swing
- It provides PPPoE client-server.
- It creates firewall rules.
- It provides a DHCP server service.
- It provides easy administration.
- It is very easy to manage bandwidth.
- It Easy GUI interface.

### 3.7 How to be a Mikro-Tik Configuration:

Mikro-Tik use three layer which is bodily layer, data link layer, network layer. when Mikro-Tik install than we use winbox to set up IP tackle ,gateway, DNS, NAT, bridge, firewall and many others .Here are three types of routing there is static, DHCP, PPPoE. Mikro-Tik router the usage of quick and easy GUI in Fig (3.2).

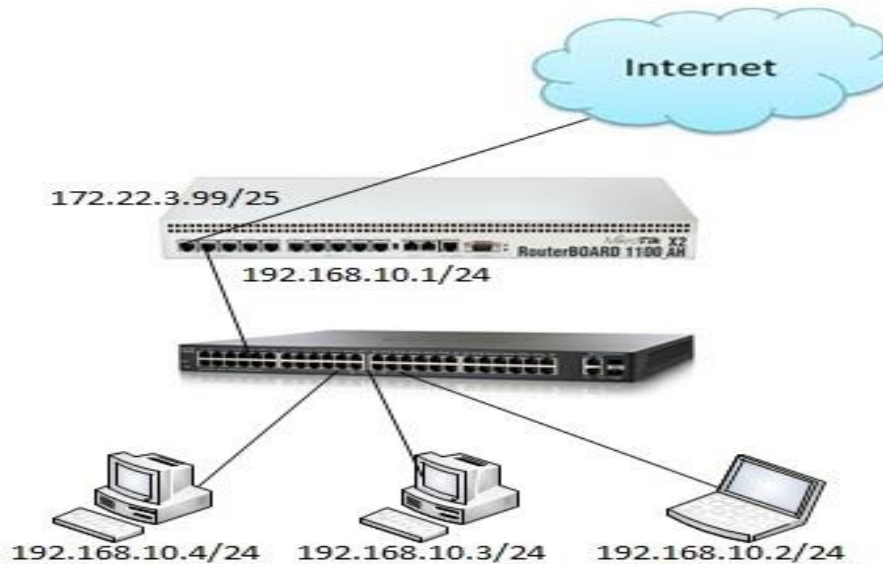


Figure 3.2: How to works Mikro-Tik.

### 3.8 Mikro-Tik Router Configuration:

Mikro-Tik Router OS is installed then winbox Software is installed. The PC with windows running device hooked up and RJ45 cables. Then rest, Mikro-Tik router Click Mac address write “admin” the login field don’t need to provide the password. Fig (3.3) Ref [4].

**Step 1:** Ping> system reset-configuration> Enter.



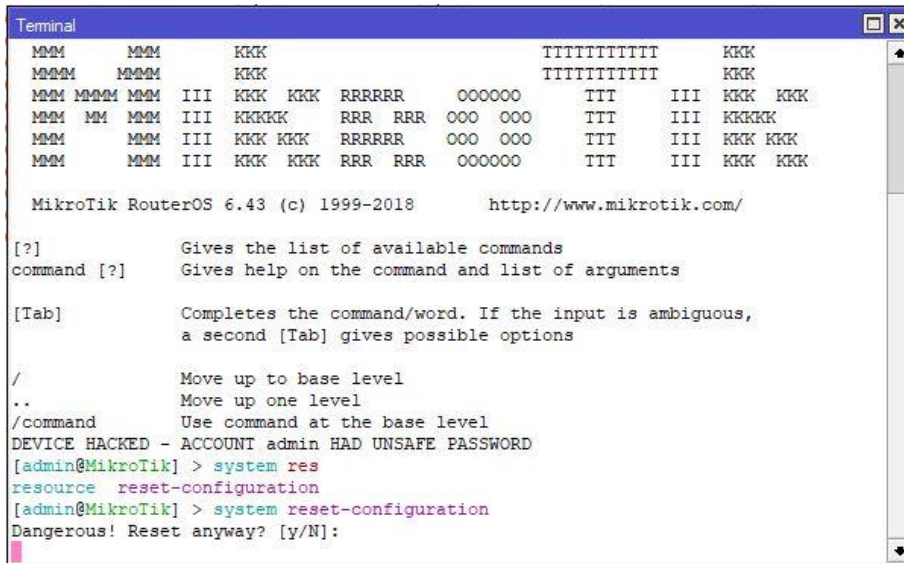


Figure3.3: Screenshot Reset Mikro-Tik Router.

Add interface LAN & WAN .choose IP to define the LAN & WAN in Fig (3.4) Ref [7]

**Step 2:** IP>add IP apply>ok

Define IP Setting up process. Process: IP click on + IP address + (plus signal click) + add IP + practice ok.

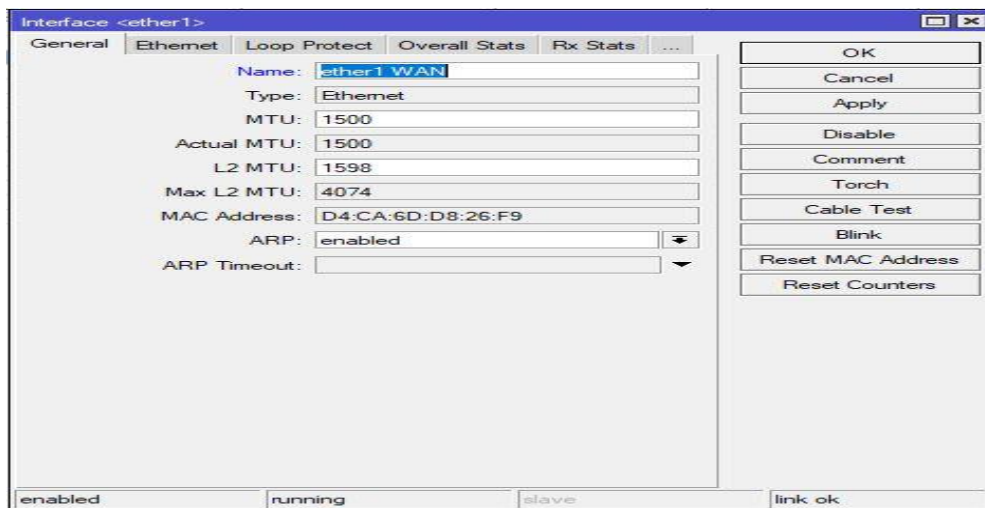


Figure 3.4: Screenshot interface Setting.

IP address chooses category B for LAN and WAN address choose which is outline easily.

Fig

(3.5)

**Step 3:** Define the process of setting up IP. Process: IP + IP Address + Click (plus sign)

click) + IP + Practice OK. N.B. First select WAN port and LAN port but WAN will provide IP add, gateway and subnet mask due to WAN. IP Address Format 0.0.0.0/0 (default route).

IP>address add> address select>interface> apply>ok

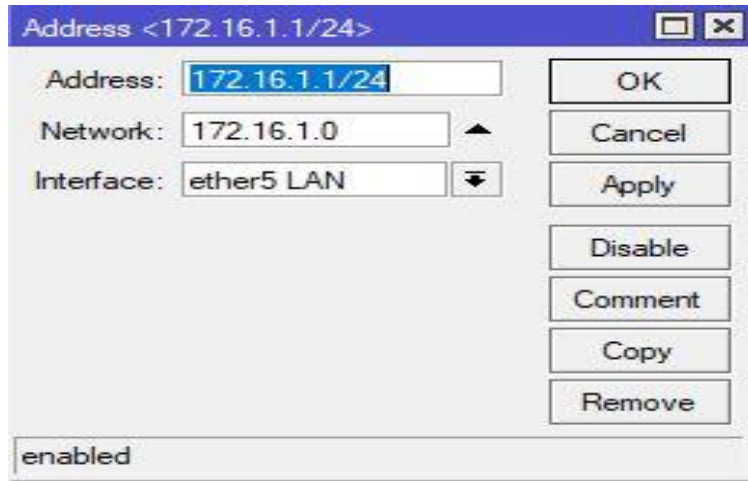


Figure 3.5: Screenshot IP address set up LAN & WAN.

PC IP eliminates and pick IP address, gateway, DNS server, and many others. And then study to IP address. Fig (3.6) Ref [5].

**Step 4:** IP>DNS IP>apply>ok

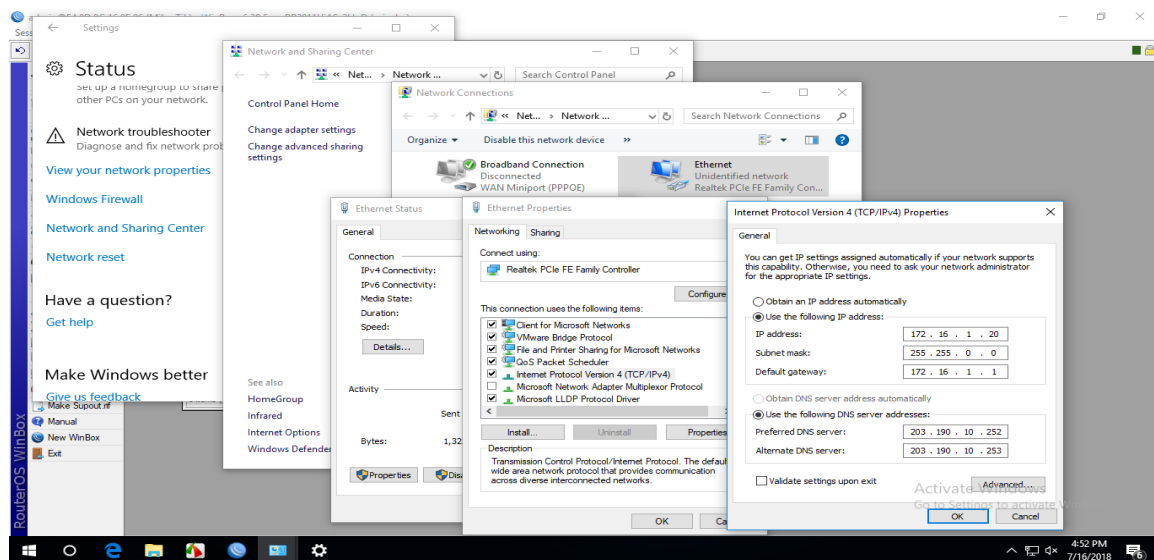


Figure 3.6: Screenshot DNS set up.

Firewall first putting is NAT setup than two boosts replicate pre-routing and a pick out motion to masquerade in Fig (3.7).

**Step 5:** IP>firewall>NAT>action>masquerade>apply>

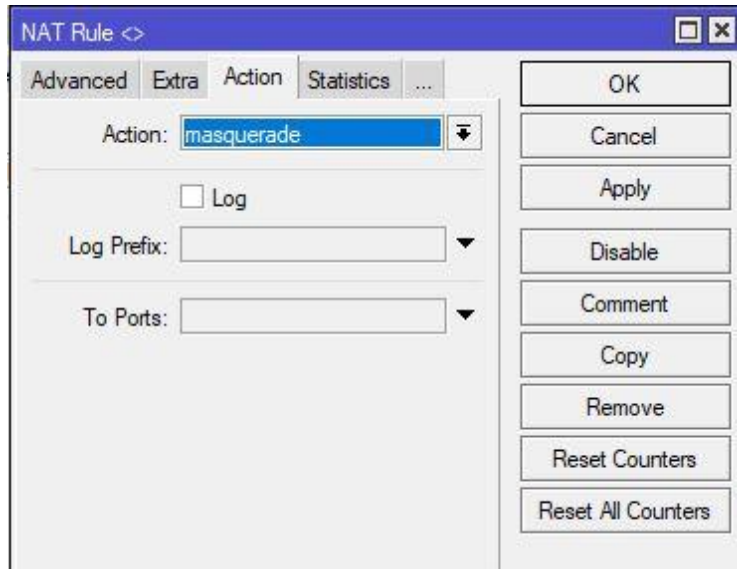


Figure 3.7: Screenshot Firewall NAT.

Next, the gateway set up the process is assigned fig (3.8)

**Step 6:** IP>route>gateway IP>apply>ok

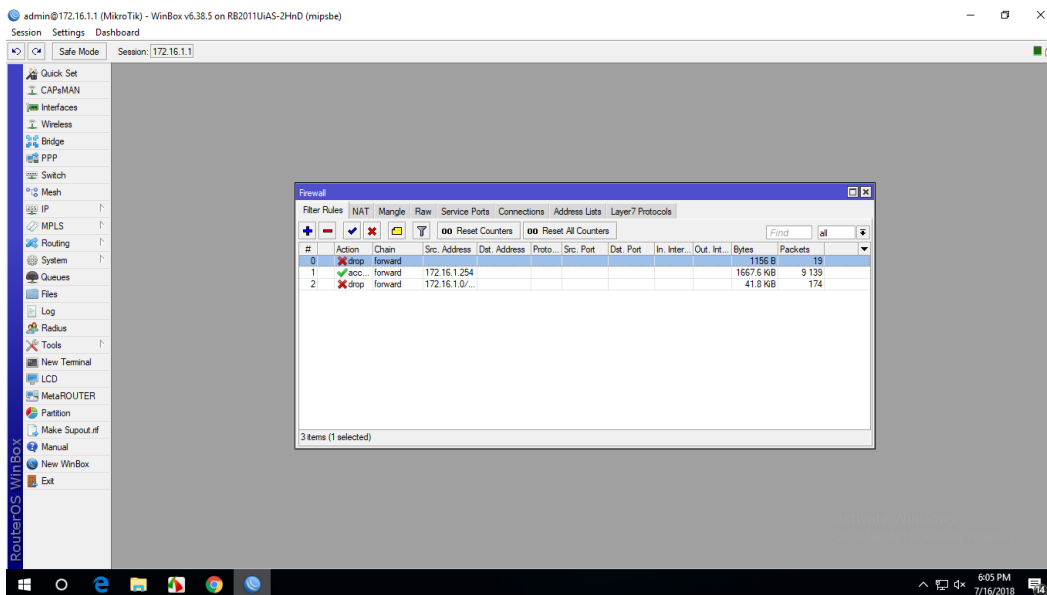


Figure 3.8: Screenshot Gateway IP Assign.

Now create a bridge which connects two or many different laptops in completely one The IP address which without difficulty shares facts passing in the same network. Fig (3.9) Ref [9];

**Step 7:** Process: Bridge>Ports> “+” > (bridge n, here n=1, 2, 3....)> Apply>ok

IP > DHCP Server > DHCP Setup > bridge 1> following Next Option.

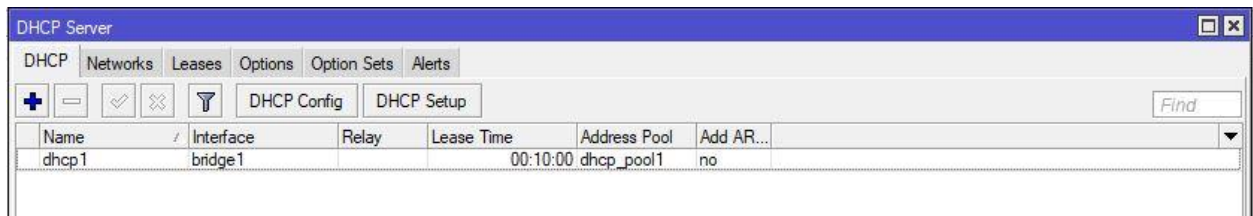


Figure 3.9: Screenshot Bridge.

Create ports to show the two bridge.Fig (3.10)

**Step 8:** Bridge>ports>add>ip adress >apply>ok

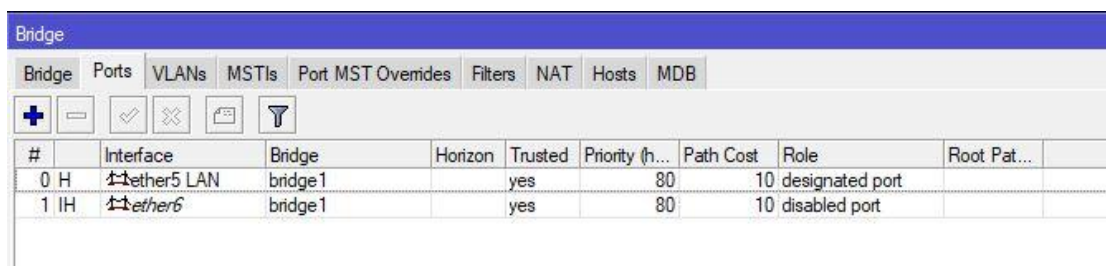


Figure 3.10: Screenshot Create Two Bridge.

Define Mangle Option to assist queue to select provide address & vacations pot address.

Fig

(3.11)

**Step 9:** IP > Firewall > Mangle> Files >Address.rsc>> New Terminal > Import Address.rsc



Figure 3.11: Screenshot set up mangle option.

To set up the net browser, rate, classifier & limit for how tons to use the data to pick out this one by way of one. Fig (3.12)

**Step 10:** Process IP > Firewall > Address list> Mangle>“+ “> Action > Mask connection > New connection Mask Name (YouTube) > Advance > select the YouTube -IP > Apply > ok

General > Connection mask >YouTube> Apply > ok

Action > Mask Packet >YouTube> Apply > ok

Queues > Queue Types >“+ “> Type Name (Download) > kind > PCQ > Select rate > Apply > ok

Queues > Queue Types >“+ “> Type Name (Upload) > kind > PCQ > Select rate > Select the Classifier src.Address> Apply > ok

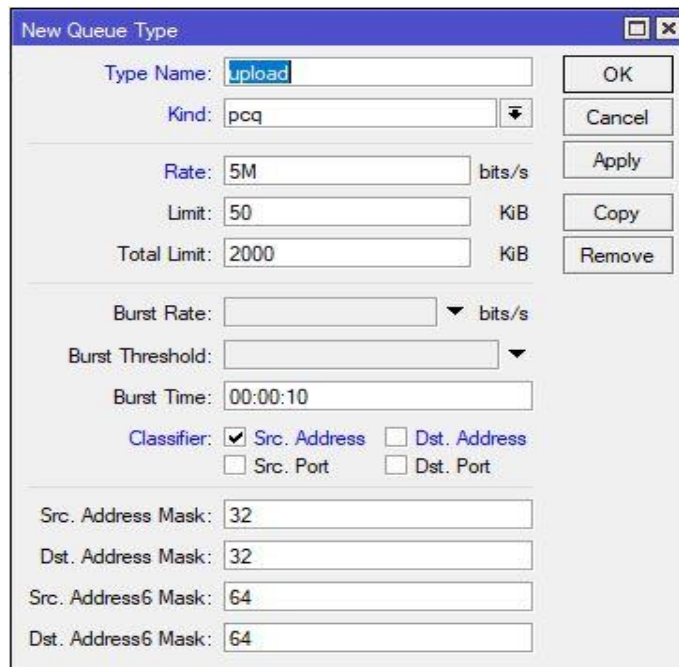


Figure 3.12: Screenshot Queue Settings.

Here we show how a lot Mbps are makes use of on YouTube browser .fig (3.13)

**Step 11:** Define Upload and Download Rate

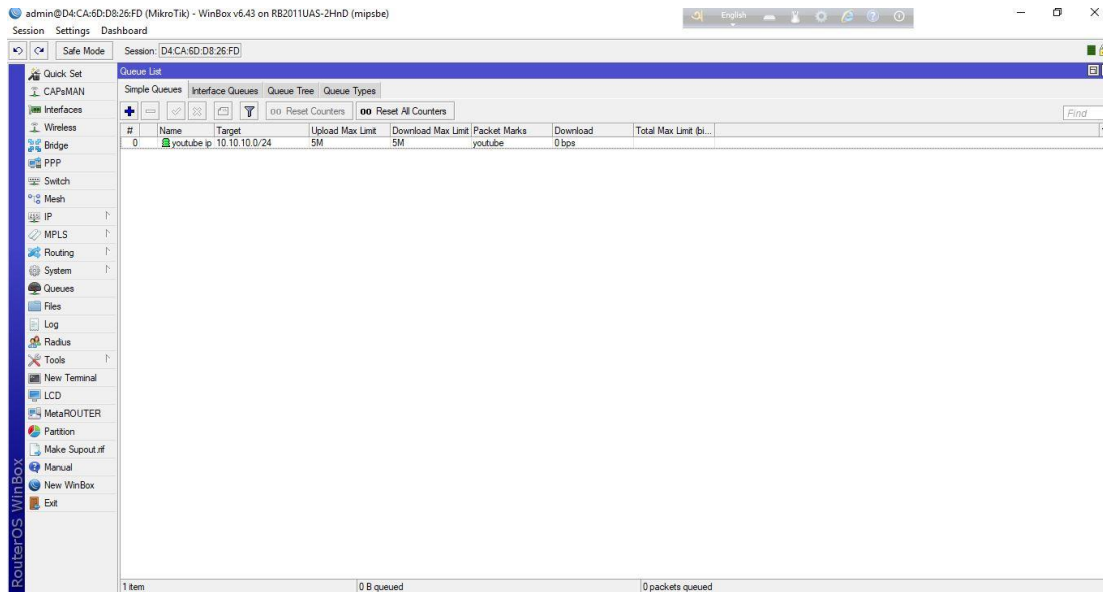


Fig 3.13: Screenshot Upload & Download rate.

### 3.9 PPPoE

PPPoE full that capability is a thing to point protocol over Ethernet. It is an antithetic profile. It is used on the whole DSL provider the place a person is the usage of free two in over to Ethernet.

### 3.10: PPPoE Configuration

First, we will configure the interface that is linked to WAN. Than laptop computer, IP address deletes & choose which we pick for PPPoE. Fig (3.14) Ref [4]

**Step 1:** Queue>address >queue type>apply >ok

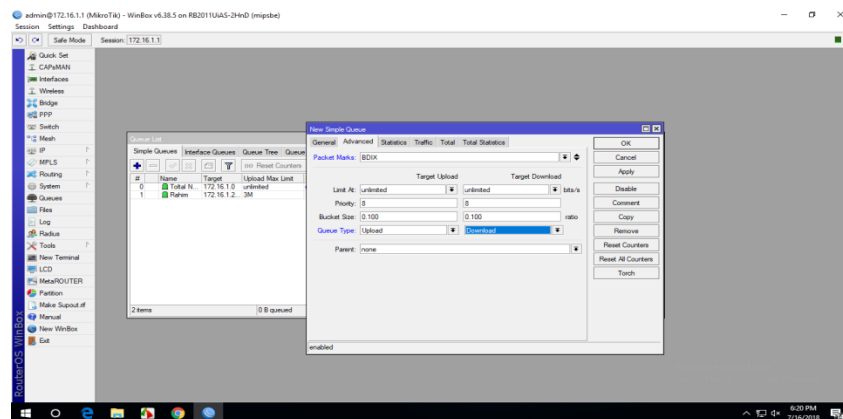


Figure 3.14: Screenshot PPPoE WAN set up.

Now one interface is configured and linked to WAN. Now we will configure the 2nd interface for our nearby community in Fig (3.15)

**Step 2:** PPP>PPPoE sever binding> add> profiles>apply>ok

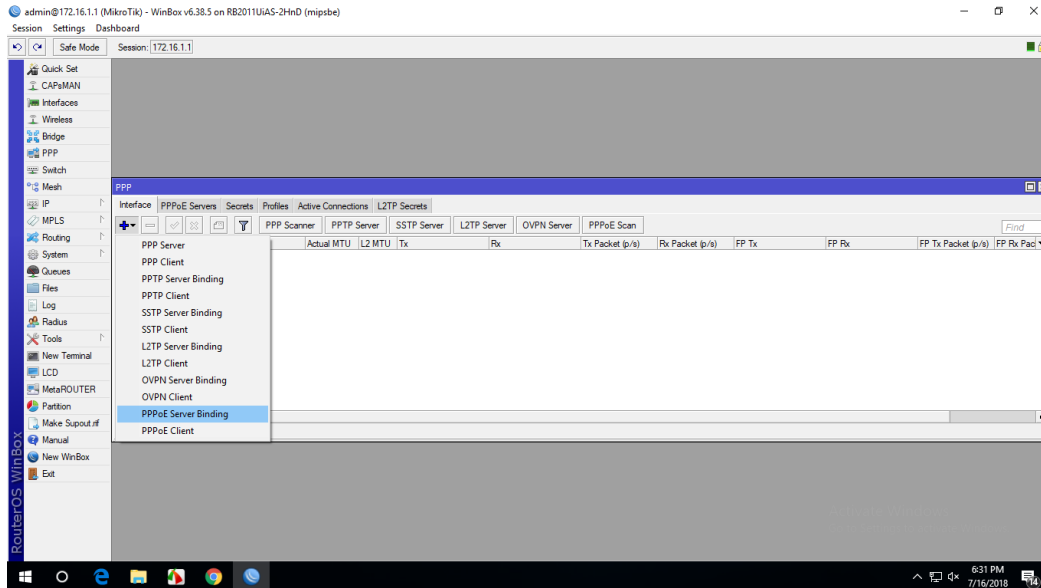


Figure 3.15: Screenshot PPPoE server Binding.

Now we will create a profile that will be used via specific users. Go to the predominant PPP window, go to Profiles tab, right here you will see two profiles through capability of default, don't do something to these default profiles, create a new profile through capability of pressing the PLUS sign. Fig (3.16)

**Step 3:** FTP>name>local address >apply >ok

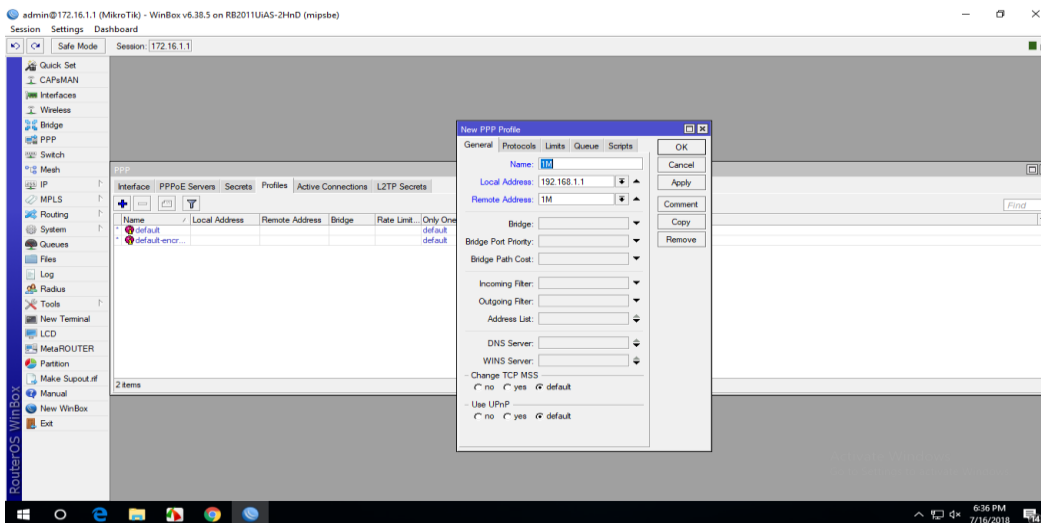


Figure 3.16: Screenshot profile create.

My PPPoE Server Setup is complete, however, the Internet proper now will not be working at any client. Now we will set up NAT and ROUTE and DNS so that the net will also work on the clients. Fig (3.17)

**Step 4:** IP > Firewall. >NAT > add >FIREWALL rule> chain=srcnat, src.address= ( ) >action=masquerade> Apply>OK.

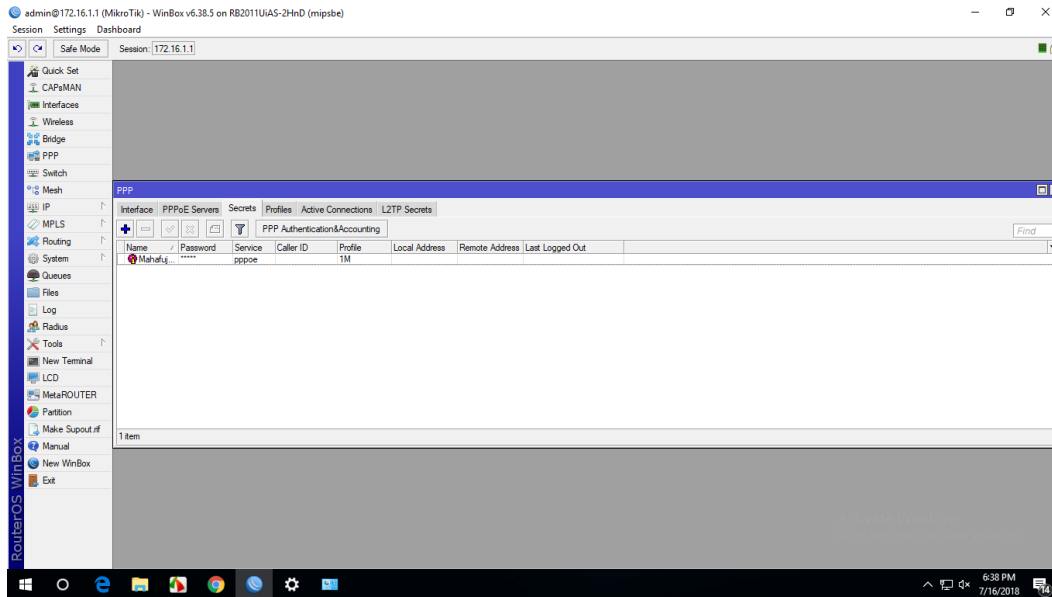


Figure 3.17: Screenshot PPP secrets to Password.

Now the last step DNS server on Mikro-Tik router and supply by way of my ISP. Now our PPPoE server setup with profile and the whole thing will work. Fig (3.18)

**Step 5:** IP > DNS> settings > primary and secondary DNS Server's IP >apply >ok.

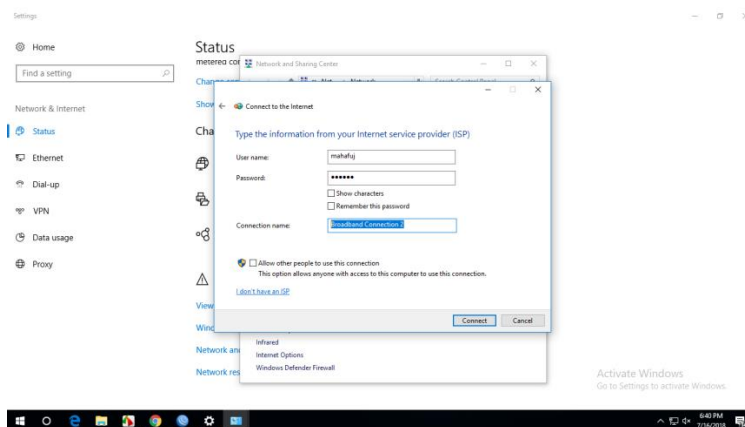


Figure 3.18: Screenshot Connect PPPoE



**3.11 Cambium Device:** Cambium networks deliver strong, high conduct, on hand wi-fi broadband additionally restoration statistics and residency get entry to the application. Ref [3];

### 3.12 Types of Cambium networks configuration:

- AP mode
- Routing mode

**AP mode:** AP mode define that I have no choice to IP address. Name and password only alternate this mode. IP tackle gives in AP mode which is given in Mikro-Tik.

**Routing Mode:** Routing mode defines that I have a desire to IP tackle and additionally exchange title and password.

### 3.13 How to configuration Cambium Networks in two types:

**AP:** Go to putting and alternate the IP address & subnet masks than we ping the IP Address. Fig (3.19)

*Step 1:* Default IP > User name > password > ok

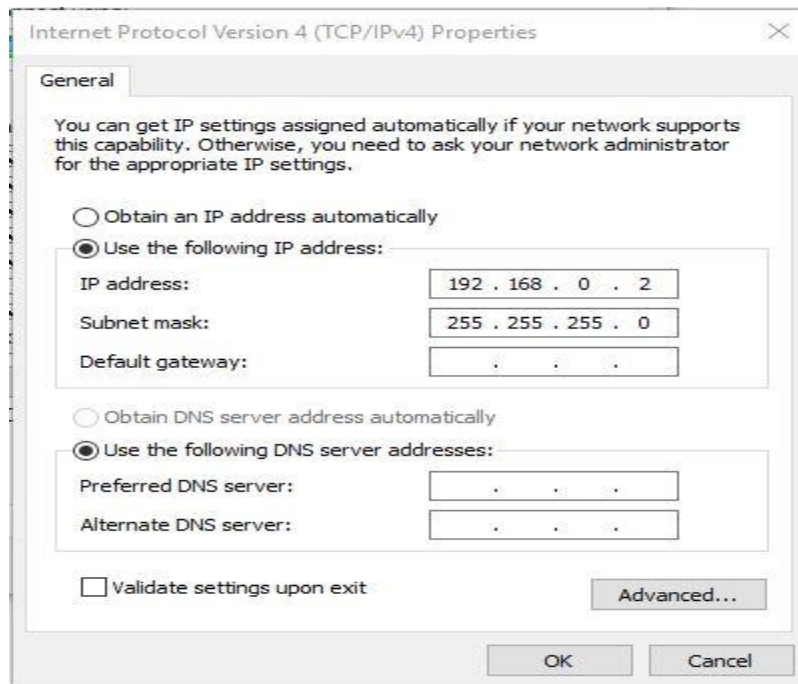
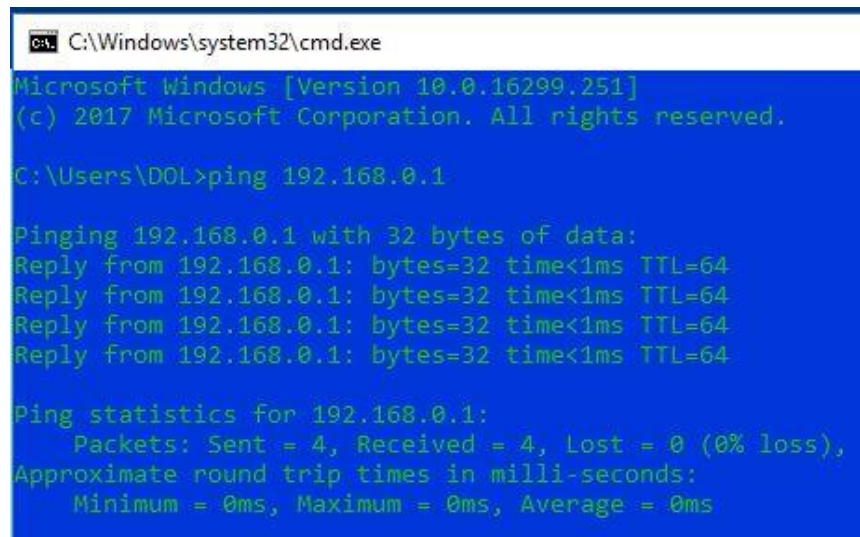


Figure 3.19: Screenshot IP address set up.

When ping IP address profitable than the ap route is configured in cambium networks. Fig (3.20)

**Step 2:** Browser>pc IP>ok than ping network address >successful



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.16299.251]
(c) 2017 Microsoft Corporation. All rights reserved.

C:\Users\DOL>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:
Reply from 192.168.0.1: bytes=32 time<1ms TTL=64
Reply from 192.168.0.1: bytes=32 time<1ms TTL=64
Reply from 192.168.0.1: bytes=32 time<1ms TTL=64
Reply from 192.168.0.1: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Figure 3.20: Screenshot ping Network address.

Cambium network login page we log in by using admin and password and then sign in Fig (3.21)

**Step 3:** admin>password>sign in



Figure 3.21: Screenshot log in page.

Define how lots customer and channel connect. And rate, limit additionally see this page. Fig (3.22)

**Step 4:** Process: sign in >ok

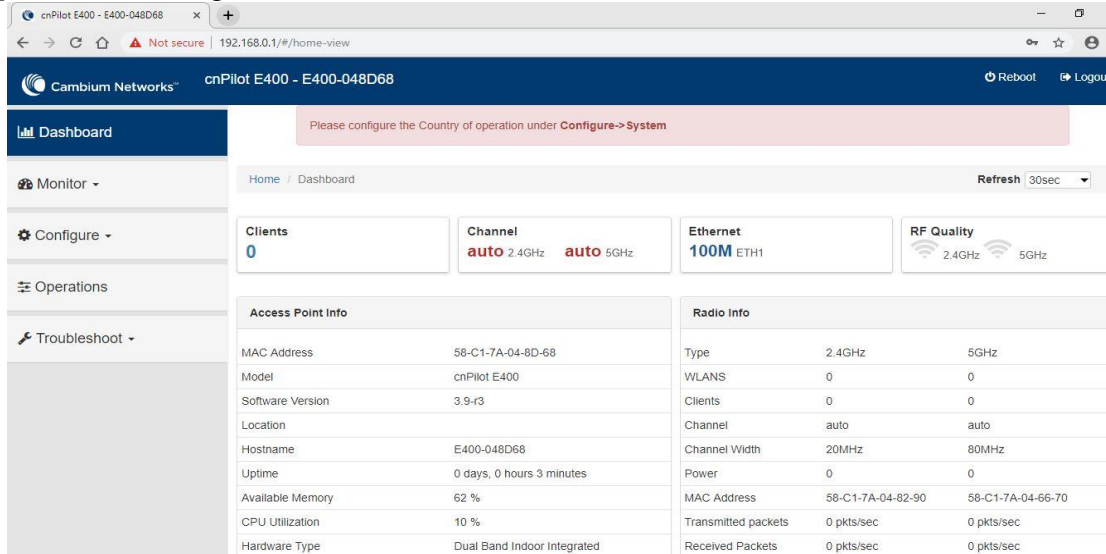


Figure 3.22: Screenshot dashboard Cambium networks.

Go to system to edit name password. Fig (3.23)

**Step 5:** Name>placement >indoor>password>save.

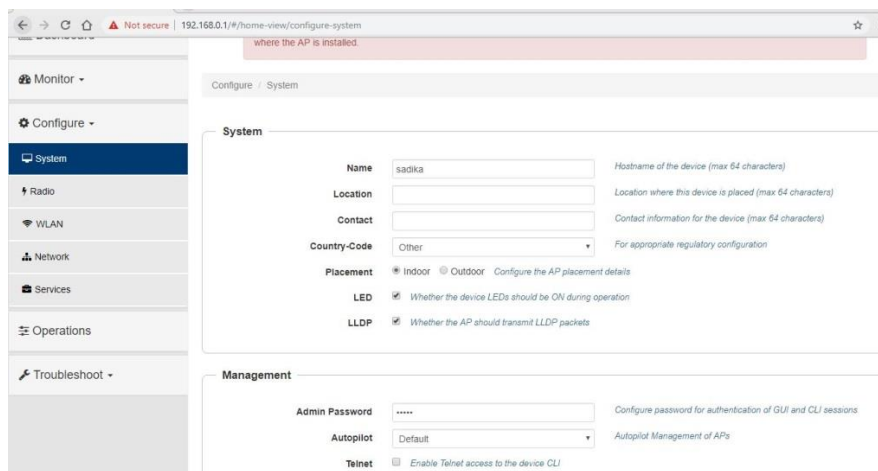


Figure 3.23: Screenshot system configure.

VLAN set up in static than set up IP address DNS server then save. Fig (3.24)

**Step 6:** Network >Static IP>Network mask>DNS server 1 >save

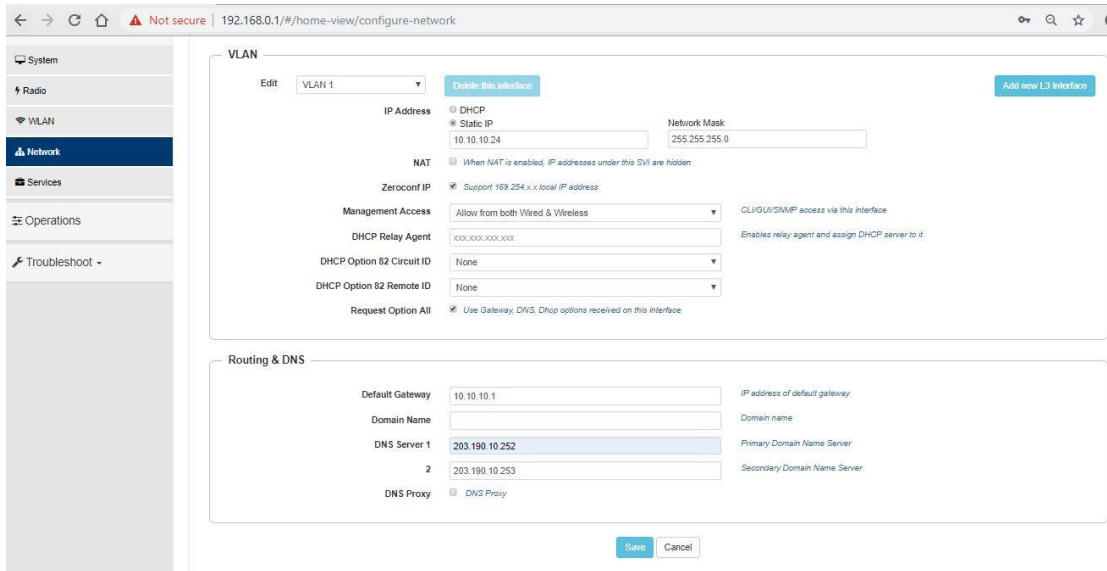


Figure 3.24: Screenshot VLAN set up

Basic set up in AP route mode two SSID & passphrase set than Ap mode is full set up than we can browse on the internet. Fig (3.25)

**Step 7:** Basic >SSID>Passphrase>save .

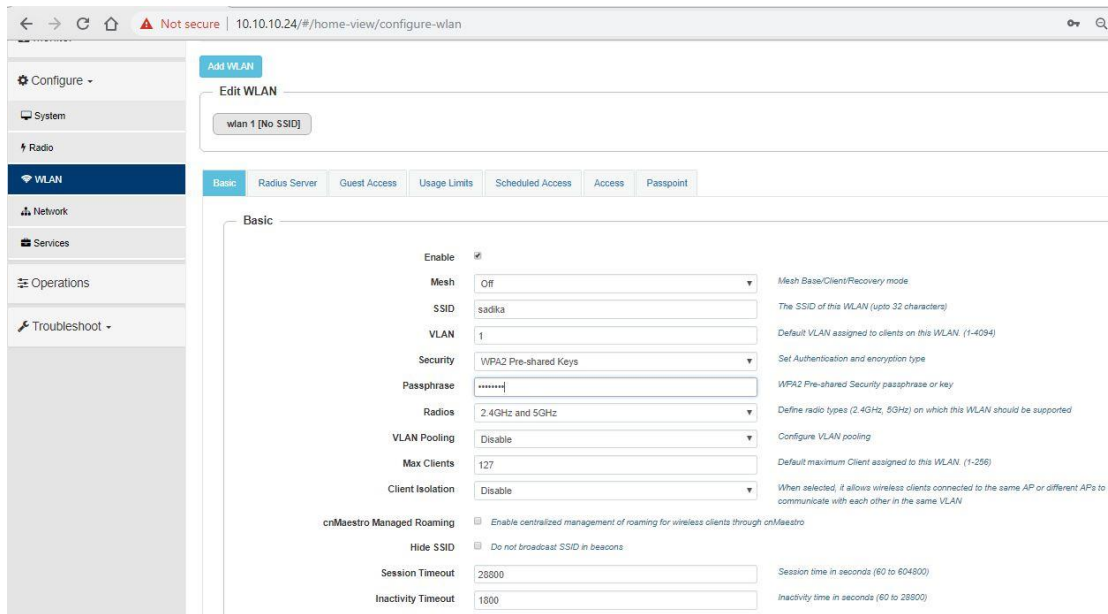


Figure 3.25 : Screenshot edit WLAN

**Routing mode :**

Routing mode is now configured to set VLAN, static IP, gateway, DNS server. Fig (3.26).

**Step 1:** Process : Network> VLAN >Edit > VLAN 100>static ip > network ip >default gateway >DNS server 1> DNS sever 2>save

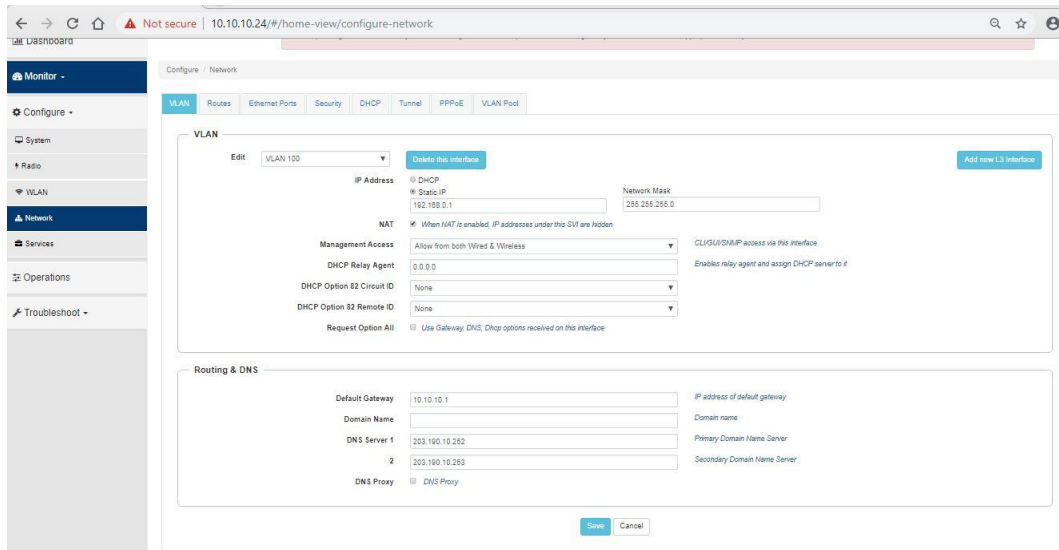


Fig 3.26: Screenshot routing mode configure.

Network icon to set up DHCP, Address range what is a restriction to shopping and DNS server. Fig (3.27)

**Step 2:** Network> DHCP >edit> pool 1>Address range > default router >DNS address >network >clint >network >save

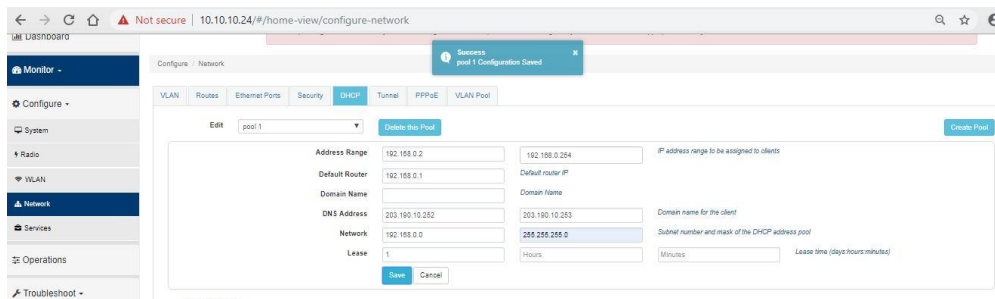


Figure 3.27: Screenshot DHCP set up.

Here WLAN just edits to identify and passphrase. And configure full routing mode. Now browse smoothly. Fig (3.28)

**Step 3:** Process: WLAN > name > passphrase >save

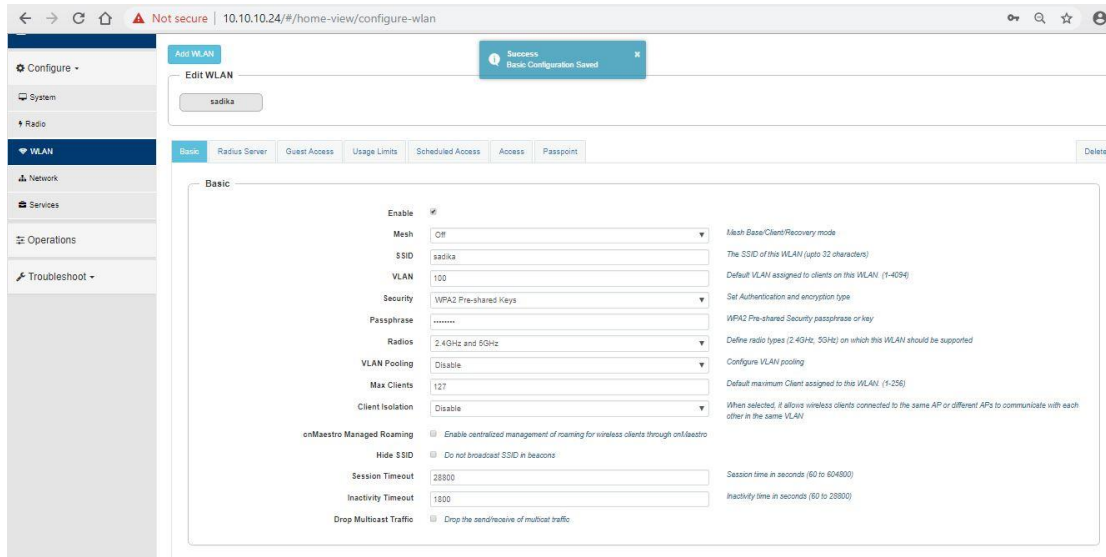


Figure 3.28: Screenshot WLAN set up.

### 3.14 Cisco Switch

A community change is a laptop network device that connects a system to a computer network by means of the usage of packet switching to receive, system and forward data to the gadget of a destination. To configure a swap we have to be aware of three basic modes. These modes additionally are the equal for the Router. Ref [3];

There is a total of five modes:

1. User Execution Switch>
2. Privilege> Switch#
3. Global configuration >Switch(config)#
4. Interface> Switch(config-if)#
5. Sub-interface >Switch(config-subif)#

### 3.15 Linux

Just like Windows XP, Windows 7, Windows 8, and Mac OS X, Linux is a working system. A working system is a software that manages all of the hardware sources associated with our computer or laptop. Ref [8];

The OS is comprised of a number of pieces:

- The Boot loader.
- The kernel.

- Daemons.
- The Shell
- Graphical Server
- Desktop Environment
- Applications.

**Many benefits of Linux :**

- The freedom to run the program, for any purpose.
- The freedom to study how the software works, and alternate it to make it do what wish.
- The freedom to redistribute copies so I can assist my neighbor.
- The freedom to distribute copies of my modified versions to others.

**3.16 Installing Linux:**

Download the Linux iso (desktop not server) and the free VMware Player.

Install VMware Player and run it, Select “Create a New Virtual Machine “Select “Installer disc photo file” and browse to the Linux iso I downloaded. Here we take two sorts of installation. We can take any different however I take usually because it’s convenient to laptop in as I prefer. Then next, Fig (3.29).

*Step 1:* Select typical>next



Figure 3.29: Screenshot Complete the VM virtual box installation.



Here three sorts of systems however I wager that's why I without difficulty use to OS, I will installation the OS later. Than Next. Fig (3.30)

**Step 2:** Select > I will install the OS later >next

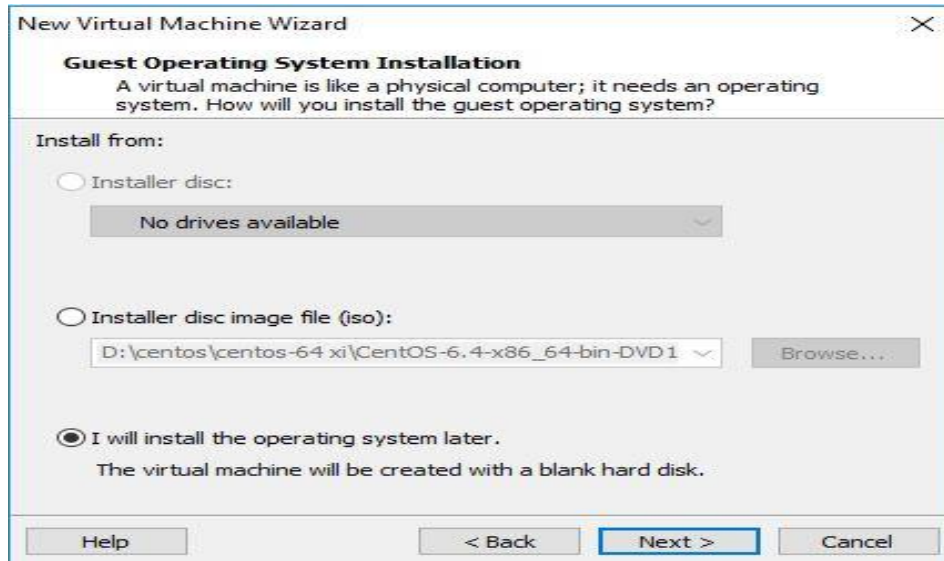


Figure 3.30: Screenshot create a virtual machine.

Here many kinds of OS however we pick Linux then model click on CentOS 64-bit due to the fact of this version. Fig (3.31)

**Step 3:** Select>Linux>version>next

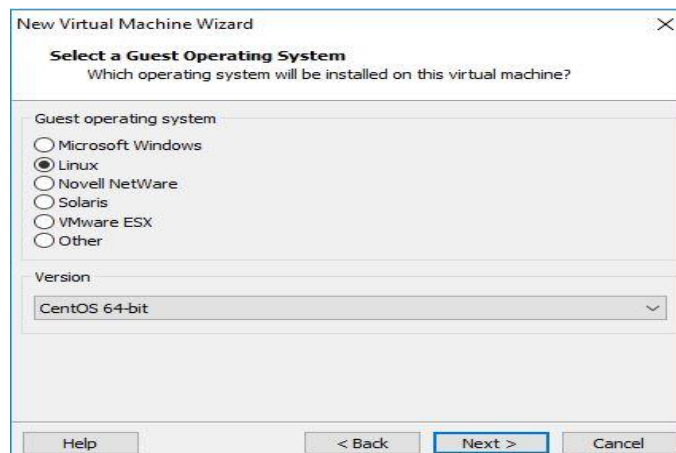


Figure 3.31: Screenshot select Linux and CentOS 64bit.

Any name select than location choose than Next. Fig (3.32).



**Step 4:** Select name> location> next

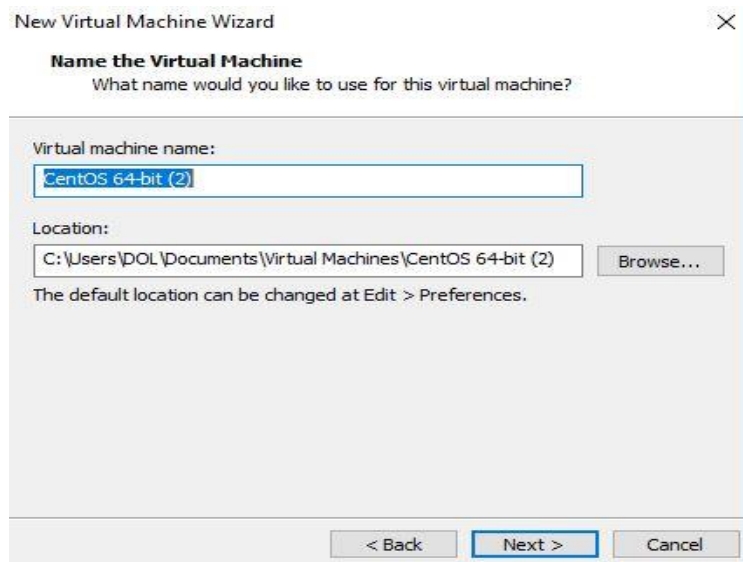


Figure 3.32: Screenshot name and Location set up.

Customize hardware later because I pick out hardware that I want and finish. Installed Linux in virtual box Fig (3.33).

**Step 5:** select > finish

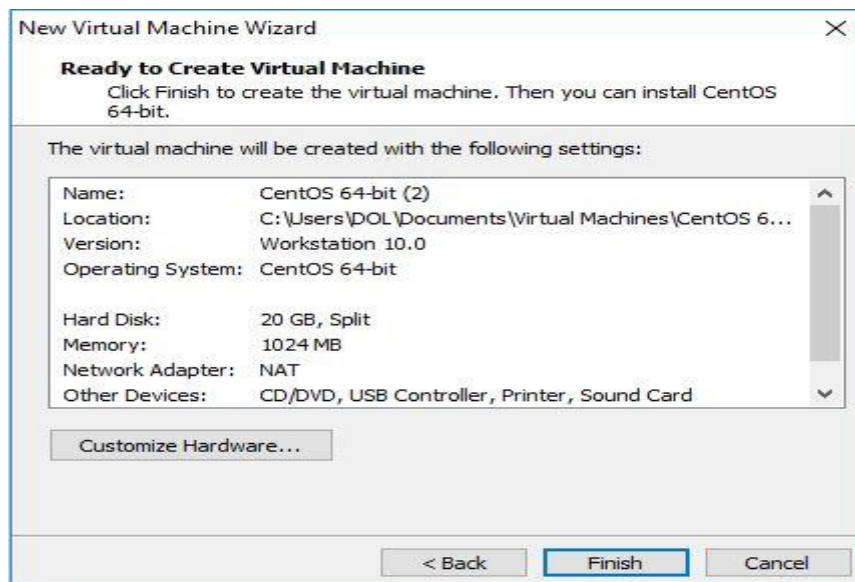


Figure 3.33: Screenshot customize hardware.

### 3.17 Challenges

The challenges in the area of engineering are extraordinary weapons, if we are looking in the engineering sector, we need apprehend shrewd knowledge. But after 4 months of internship journey and sharing of friends, after listening completely joyful times I had the intern has found that there are some prevalent challenges. I assume its intern three Things are: unpaid / under, transient and they are in the strolling reap experience. Sometimes it's not enough: I'm no longer assigned enough work. I'm bored Squeezing, jerking my finger on my desk and prompting Facebook to recognize it.

**Excessive work:** Since interns are only completely satisfied to get a foot in the door, some offices can even gain youthful employees via imparting fewer hours of meaningless repetitive work.

## CHAPTER 4

### COMPETENCIES AND SMART PLAN

#### 4.1 Competencies Earned

The end result in obtaining or analyzing a position is to make sure what an apprentice expects. As a result of the find out about process, be in a position to know, be arrested or do. Install and Dissociation of every community and server laptop into two document views. In the lead function Linux software program implementations, for example, have been linked to LDAP HA. Studying application outcomes, topics, and internship evaluations. Collecting and Organizing Information on Internship Project Details: Participate in a redesign Linux Lab Internet site.

**Learning Outcomes:** Install and configure software applications and enhancements. Install, configure, and take a look at Network Employer Services. Additionally, regularly find out about results, the internship on-site supervisor will grant a direction. Related to organizational policies and procedures.

#### 4.2 Smart Plan

Each organization must have a smart diagram to achieve success. Basically, the idea of mixing something frequently creates a smart plan.

#### 4.3 Reflections

An intern to gain practical experience in the engineering discipline. It helps increase your journey in engineering jobs. In the Intern Period, I understand the Linux server. Linux One of the most popular working devices of the day. I'm on Linux and Security measures. This experience helps me become a strong applicant in the job market.



## **CHAPTER 5**

### **CONCLUSION AND FUTURE CAREER**

#### **5.1 Discussion and Conclusion**

In modern age of science and information technology, which is necessary for Improving a greater high-quality operation and administration process. In order to better serve customers, businesses want to be trained in many areas decrease time, accelerate new enterprise strategies, enhance client offering and expand skills sharing and learning. IT is basic but effective useful resource for implementing all these goals. Internships are nothing but a step forward in expert life. An internship is a bridge between theoretical data and practical knowledge. During the internship period, a variety of realistic experiences were gathered while performing tasks at one point. During the internship period, there are many obstacles. Which would have been a part-time experience for me? Three months of completing which I labored for Variations. I did my satisfactory to get accustomed to the corporate surrounding and attain every goal and every goal.

#### **5.2 Scope for Further Career**

I have been capable have a simple Linux server, but in the future, without the difficulty of securing a secure large Linux configuration, I want a large Linux server such as a data center to be able to continue and how to test a Linux server safely. I attempt to my best to analyze these for my great future. Career opportunities are accessible in various fields below Linux. The business potential in Linux is just bringing the Linux platform forward.

## REFERENCES

- [1] About Intech Limited <<<https://intechworld.net>>> (Last visit on 2<sup>nd</sup> may 2019, 9.00 pm).
- [2] Learn about Mikro-Tik <<<https://systemzone.net/mikrotik-router-basic-configuration-using-winbox/>> (Last visit on 5<sup>th</sup> May 2019 2.00 pm).
- [3] Know about Cisco switch < <https://www.cisco.com/c/en/us/training-events/training-certifications/certifications/associate/ccna-routing-switching.html>> (Last visit on 15<sup>th</sup> may 2019 11.00 am).
- [4] Concept the PPPoE < [https://wiki.mikrotik.com/wiki/Pppoe\\_server\\_with\\_profiles](https://wiki.mikrotik.com/wiki/Pppoe_server_with_profiles)> (Last visit on 15<sup>th</sup> may 2019 11.00pm).
- [5] Get concept the DNS Server < <https://www.unixmen.com/setting-dns-server-centos-7/> > (Last visit on 15<sup>th</sup> may 2019 3.00 pm).
- [6] About the cambium network < [http://community.cambiumnetworks.com/t5/ePMP-Configuration-Management/bd-p/kb\\_epmp\\_configuration\\_examples](http://community.cambiumnetworks.com/t5/ePMP-Configuration-Management/bd-p/kb_epmp_configuration_examples)> (Last visit on 20<sup>th</sup> may 2019 6.00 pm).
- [7] Help about IP address< <https://www.technobezz.com/how-to-find-your-router-ip-address/>>> (Last visit on 22<sup>th</sup> may 2019 7.00 pm).
- [8] Learn about Linux < <https://www.linux.com/what-is-linux>> Last visit on 25<sup>th</sup> may 2019 5.00 pm).
- [9] Concept the Bridge < <https://support.ispsupplies.com/hc/en-us/articles/115009794208-Bridge-Two-MikroTik-Devices>> (Last visit 30<sup>th</sup> may 2019 2.00 pm).
- [10] Know about VM ware workstation < [https://en.wikipedia.org/wiki/VMware\\_Workstation](https://en.wikipedia.org/wiki/VMware_Workstation)> > (last visit 2nd June 2019 9.00 am).
- [11] Know about Firewall < <https://www.interserver.net/tips/kb/add-ip-address-windows-firewall/>> (last visit 21th march 2019 2.00 pm).



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